

True

[Proceedings United States National Museum, Vol. XI.—Appendix.]

SMITHSONIAN INSTITUTION.

UNITED STATES NATIONAL MUSEUM.

No. 48.

681

GUIDE TO A COLLECTION ILLUSTRATING THE FAMILIES OF  
MAMMALS, EXHIBITED IN THE OHIO VALLEY CENTENNIAL  
EXPOSITION IN 1888 BY THE U. S. NATIONAL MUSEUM.

By FREDERICK W. TRUE, *Curator of the Department of Mammals.*

INTRODUCTION.

In the collection exhibited by the Department of Mammals are represented all those divisions of the class *Mammalia* known technically as Families, except such as are founded upon extinct forms belonging to earlier periods of the earth's history. Of a few families, however, the Museum possesses no specimens, and as none were obtainable in the short time allotted for the preparation of the collection, these families are represented only by pictures.\*

The *Family* is the third in point of comprehensiveness of the divisions among which the various kinds of mammals and other animals are distributed. Below it stands the *Genus*; and still less comprehensive is the *Species*. On the other hand we have the *Order*, which is the most comprehensive division in the Class.

The Family is founded on points of structure which are of very considerable importance, and the gaps between family and family are ordinarily not easily overlooked. In fact, these groups are like islands in the sea. Some stand side by side, and are separated by only a narrow strait, but for the most part we have no great difficulty in determining that they are but islands and do not form a mainland. The popular idea of a family is embodied in the terms "the Dog tribe," "the

\* The family *Dinomyidae* includes the single genus *Dinomys*, of which only one specimen is known. This specimen is in the Royal Zoölogical Museum in Berlin.

Representatives of the families *Potamogalidae* and *Lophiomyidae* are very rare, and are seldom to be obtained, and the same is the case, to a greater or less extent, with all the families represented in this collection by pictures.

For the most part, each family is represented by one or more mounted skins and skeletons of characteristic species.

Pam

Cat kind," etc., meaning respectively the different kinds of dogs, wolves, foxes, etc., and the lion, tiger, panther, domestic cat, and the like. These groups would correspond to the family *Canidæ* and the family *Felidæ*.

It would, of course, be very desirable to represent each of these groups by a considerable number of specimens, but it was found that in order to carry out such a plan all the space allotted to the Smithsonian Institution in the Exposition would be needed.

For this reason, and also because the time was limited, many of the families are represented only by a single species, or by two species, a skeleton of one of which is shown, and of the other a mounted skin.

The collection, with the exception of a few large objects, is exhibited in a single case about 145 feet long, 3 feet wide, and 6 feet high (without the base). This necessitates the arrangement of the specimens practically in a single line, which is, perhaps, not the most desirable mode, since any single group may be related to several others in the series, and not merely to that which immediately precedes and that which immediately follows it. As the arrangement is, however, that which is necessarily adopted in books, where the names follow one another on succeeding pages, it has perhaps something to recommend it.

In the following pages I shall pass into review the different forms exhibited, beginning at the left end of the case, with man, and passing gradually toward the right end, where are the *Monotremata*, or egg-laying mammals, the lowest forms of the class.



## CATALOGUE.

### Order PRIMATES. MAN, MONKEYS, AND LEMURS.

#### 1. Family HOMINIDÆ. MAN.

Species exhibited: Man, *Homo sapiens* (skeleton).

The first family in the order *Primates* is that of the *Hominidæ*, whose sole representative is Man. "Considering solely the facts of Man's bodily structure," writes Professor Flower, "it can be clearly demonstrated that the points in which he differs from the most nearly resembling Ape are not of greater importance than those by which that Ape differs from other universally acknowledged members of the group; and therefore, in any natural system, if Man is to be made a subject of zoological classification upon the same principles as those applied elsewhere, he must be included in the order which comprises the Monkeys."

It will be of interest to compare the human skeleton exhibited here with those of the great apes which stand near by.

#### 2. Family SIMIIDÆ. The ANTHROPOID APES.

Species exhibited: Gorilla, *Gorilla savagei* (mounted skin and skeleton); Chimpanzee, *Troglodytes niger* (mounted skin and skeleton); Siamang, or Webbed-fingered Gibbon, *Hylobates syndactylus* (mounted skin and skeleton).

Next to man are placed the great apes, which resemble him most in structure.

The largest form is the famous Gorilla, whose height when standing is not less than that of a well-developed man. It inhabits western equatorial Africa. Living with it, but ranging also further eastward, is the Chimpanzee, a smaller species. Mounted skins and skeletons of both these apes are exhibited. A third great ape, the Orang of Borneo, is not represented.

Next to these remarkable beasts stand the long-armed Gibbons (*Hylobates*), of which there are several species. They are inhabitants of eastern India and the Malay Islands. One species, the curious Webbed-fingered Gibbon, is exhibited. It inhabits Borneo.

#### 3. Family CERCOPITHECIDÆ. The OLD-WORLD MONKEYS.

Species exhibited: Entellus Monkey, *Semnopithecus entellus* (mounted skin); Proboscis Monkey, *Nasalis larvatus* (skeleton); Black Macaque, *Macacus maurus* (mounted skin).

This family includes all the different kinds of monkeys which inhabit the Old World, except the great apes, which we have just considered. There are in all about 90 species. The Entellus Monkey and the

Black Macaque, which are exhibited, may be taken as examples of the two most striking modifications of form in this family. The Eutellus Monkey is slender, and is provided with a long tail, while the Macaque is thick-set, and has the shortest of tails. The familiar Baboons and the Mandrill, the most remarkable of beasts in the matter of coloration, are included in this family. The range of the Old-World Monkeys extends in Asia and Africa, from Tibet and Japan to the Cape of Good Hope. The range of one species, the Barbary Ape, *Macacus sylvanus*, extends into Europe; it lives on the Rock of Gibraltar.

#### 4. Family CEBIDÆ. The NEW-WORLD MONKEYS.

Species exhibited: White-throated Capuchin Monkey, *Cebus hypoleucus* (mounted skin); Capuchin Monkey, *Cebus capucinus* (skeleton); Squirrel Monkey, *Chrysithrix entomophaga* (skeleton).

The monkeys which inhabit America are essentially different from any of the monkeys of the Old World, and form a separate family. They are at once distinguishable from the Old-World forms by their widely-separated nostrils. Many species have prehensile tails. Seven or eight genera are usually recognized. The mounted skin exhibited is that of one of the Capuchin monkeys, *C. hypoleucus*, belonging to the genus *Cebus*, from which the family takes its name. The skeleton of a closely-allied species, *C. capucinus*, and one of the Howler, *Myctes seniculus*, are also to be seen. The Howlers are the largest American monkeys. They have a peculiar enlargement of the hyoid, or tongue-bones, which enables them to make extraordinary loud cries.

The Squirrel monkeys, the skeleton of one species of which is exhibited, are the smallest of the true American monkeys. The tail in these animals is only imperfectly prehensile. The range of the American monkeys extends from central Mexico to Paraguay.

#### 5. Family HAPALIDÆ. The MARMOSETS.

Species exhibited: Pinche, *Midas ædipus* (mounted skin); Silky Marmoset, *Hapale rosalia* (skeleton).

The Marmosets are small monkey-like animals, which differ from the true American monkeys in having claws rather than nails, and in having the teeth modified for an insect diet. They inhabit South America. Two genera are usually recognized, *Hapale* and *Midas*. Specimens of a species of each genus are exhibited. About 24 species are known.

#### 6. Family LEMURIDÆ. The LEMURS.

Species exhibited: Mongoose Lemur, *Lemur mongoz* (skeleton); Ruffed Lemur, *Lemur varia* (mounted skin); Short-tailed Lemur, *Indris brevicauda* (mounted skin); Slender Loris, *Loris gracilis* (skeleton); Slow Lemur, *Nycticebus tardigradus* (mounted skin); Smith's Chirogale, *Chirogaleus smithii* (mounted skin).

We come now to quite another division of the order *Primates*, and one which is sometimes separated as a distinct order, under the name of *Lemuroidea*. It includes a large number of peculiar animals, of moderate or small size, called Lemurs, or lemuroid beasts. The majority of the species are confined to the great island of Madagascar, but some



live in the adjacent islands and on the continent of Africa, and a few in southern Asia. The skin of *Lemur varia*, and the skeleton of *Lemur mongoz*, which are exhibited, give a very good idea of the form and general appearance of these animals. The short-tailed Lemur, *Indris brevicauda*, is a larger form, peculiar in possessing only the rudiment of a tail. The Chirogales are small species, which to some extent replace the rats and squirrels in Madagascar. *Chirogaleus smithii*, or *pusillus*, is exhibited. The Asiatic Lemurs are represented in the collection by the Slow Lemur, *Nycticebus*, or *Stenops*, *tardigradus*, and the Slender Loris, *Loris gracilis* (skeleton).

**7. Family TARSIIDÆ. The SPECTRES.**

Species exhibited: Malmag, *Tarsius spectrum* (picture).

This family has been formed for the single species known as the Spectre, or Malmag, *Tarsius spectrum*, an animal of about the size of a squirrel, which lives in the Malay Archipelago. It is represented only by a picture.

**8. Family CHIROMYIDÆ. The AYE-AYE.**

Species exhibited: Aye-Aye, *Chiromys madagascariensis* (mounted skin).

Like the last, this family contains but one species, the Aye-Aye, an inhabitant of Madagascar, and one of the most singular of beasts. It resembles the lemurs in many respects, but the teeth are quite like those of a squirrel, and the animal uses them for gnawing. The hands are very peculiar, the fingers being long, with the last joint of the third one remarkably attenuated. The Aye-Aye feeds on bamboo pith, sugar canes, and also on insects. Specimens of the species are rarely obtained.

**Order CARNIVORA. The Carnivores.**

With the Cats, we reach another order of mammals, the *Carnivora*, or Flesh-eaters, among which are the fiercest of beasts. They are the natural enemies of the vegetable feeders, which serve them for food.

**9. Family FELIDÆ. The CATS.**

Species exhibited: Jaguar, *Felis onca* (mounted skin).

The Cats are too well known to require more than a passing comment.

The Jaguar, which is the species exhibited, is one of the two largest American Cats. It is occasionally captured in Texas, which is the northern limit of its range. Other well-known cats are the Lion, Tiger, Leopard, Lynx, and the Domestic Cat that serves our children for a playmate. About 50 species of Cats are known.

**10. Family CRYPTOPROCTIDÆ. The FOUSSAS.**

Species exhibited: Foussa, *Cryptoprocta ferox* (picture).

The family includes a single species, which is about twice the size of a common cat. It lives in Madagascar. In structure it is intermediate between the cats and the civets. No specimens were obtainable.

**11. Family VIVERRIDÆ. The CIVETS.**

Species exhibited: African Genette, *Genetta poensis* (mounted skin); Borneo Civet, *Viverra tangalunga* (skeleton); Binturong, *Arctitis binturong* (mounted skin).

This a large family of moderate-sized animals, and includes the forms commonly known as Civet Cats, Ichneumons (or Mungoses), and Genettes. They inhabit Asia, Africa, and southern Europe. We have in the collection an African Genette, *G. poensis*, believed by some writers to be identical with the common Genette of Europe; the curious Binturong, *Arctitis binturong*, of southeastern Asia; and a skeleton of the Borneo Civet, *Viverra tangalunga*.

The family includes at least sixty-five species.

**12. Family PROTELIDÆ. The AARD WOLVES.**

Species exhibited: Aard Wolf, *Proteles lalandii* (skeleton).

This family is represented solely by the Aard Wolf of South Africa, of which only the skeleton is exhibited. The species is of about the size of a large fox and resembles the Striped Hyæna, *H. striata*, which is exhibited near the skeleton. It is a night-roving animal, and lives on insects and decomposing animal matter. Its teeth are small and simple.

**13. Family HYÆNIDÆ. The HYÆNAS.**

Species exhibited: Striped Hyæna, *Hyæna striata* (mounted skin).

Every one is familiar with the appearance of these animals. There are three species, which are sometimes regarded as belonging to separate genera. These are the Brown Hyæna, *H. brunnea*, and the Spotted Hyæna, *H. crocuta*, of South Africa, and the Striped Hyæna, *H. striata*, of northern Africa and southern Asia. A specimen of the last is exhibited. The Hyænas feed chiefly on the carcasses of dead animals.

**14. Family CANIDÆ. The DOGS.**

Species exhibited: Cape Hunting Dog, *Lycaon picta* (mounted skin); Grey Fox, *Urocyon virginianus* (mounted skin).

This family includes a considerable number of familiar beasts, such as the Wolves, Foxes, and Jackals, and the Domestic Dog. Representatives of the family are found in all the continents. Specimens of the singular Cape Hunting Dog (*Lycaon picta*) of South Africa, and of the common Grey Fox (*Urocyon virginianus*) are included in the collection. About thirty-three species belong to this family

**15. Family MUSTELIDÆ. The WEASEL.**

Species exhibited: Otter, *Lutra canadensis* (mounted skin and skeleton); Fisher or Pekan, *Mustela pennanti* (mounted skin); Mink, *Putorius vison* (mounted skin); Zorilla, *Ictonyx zorilla* (mounted skin); Skunk, *Mephitis mephitica* (mounted skin).

The species in this family are more numerous than in the last, while the animals themselves, on the whole, are much smaller. About sixty species are known. Here belong the Badger, Otter, Mink, Ermine,



Skunk, and Sea otter. Nearly all the furs which we use to keep us warm in winter are derived from different members of this family, which is therefore sometimes called the family of fur-bearing mammals. These animals are, however, broadly speaking, weasels. The group is well represented in North America, and we have chosen several different forms for exhibition. (See list at the head of this paragraph.) Included with them is an African representative, the Cape Zorilla, *Ictonyx zorilla*, which is not unlike the little Striped Skunk of North America in appearance. All these animals are voracious flesh-eaters. The Otter and Sea-otter live chiefly in the water and subsist upon fish.

**16. Family PROCYONIDÆ. The RACCOONS.**

Species exhibited: Raccoon, *Procyon lotor* (mounted skin and skeleton).

The Raccoons are limited to America. They differ from the weasels in having four grinders in each jaw, *i. e.*, eight in all; the weasels have but four, or at most six. They are also quite different in external appearance, recalling the Bears, with which, indeed, they were once united by most writers. A skin and a skeleton of the common Raccoon, *Procyon lotor*, the typical member of the family, are included in the collection. Other forms are the Coati of South America, *Nasua narica*; the Cat-squirrel, *Bassaris astuta*; and the Kinkajou, *Cercoleptes caudivolvulus*. The last two are different in many respects from the common Raccoon, and by some writers are placed in separate families.

**17. Family AILURIDÆ. The PANDAS.**

Species exhibited: The Panda, *Ailurus fulgens* (mounted skin).

We come now upon a singular creature, resembling a small Bear, but with a long tail and the same number of grinders as the Raccoon. This animal, which is known as the Panda, lives high up in the southeastern Himalayas, and feeds upon fruits and other vegetable substances. It is the sole representative of the family. Specimens are not often obtained.

**18. Family URSIDÆ. The BEARS.**

Species exhibited: Black Bear, *Ursus americanus* (mounted skin); Sloth Bear, *Melursus labiatus* (skeleton).

The commoner species of Bears are familiar creatures and need no description. Three genera are recognized. There are four, or possibly five species in America besides the Polar Bear, which occurs throughout the Arctic regions. Some eight species inhabit Europe and Asia. The rarest is one called *Ailuropus melanoleucus*, which somewhat resembles the Panda of the previous family, but is without its long tail. "It lives in the most inaccessible mountains of eastern Tibet. Said to feed principally on roots, bamboos, and other vegetables. It is of the size of a small Brown Bear, of a white color, with ears, spots round the eyes, shoulders and limbs black."

The species exhibited are the common American Black Bear and the Sloth Bear of India. The latter species lives chiefly on ants, beetles, and fruits.

**19. Family OTARIIDÆ. The EARED SEALS, OR SEA LIONS.**

Species exhibited: Fur-seal, *Callorhinus ursinus* (mounted skin).

The aquatic Carnivores form a very distinct division of the order *Carnivora*, and are sometimes separated under the name of *Pinnipedia*, or the Fin footed beasts. The toes are webbed to the tips, forming fins or "flippers."

The family *Otariidæ* includes the mammals commonly known as Sea-lions, Sea-bears, Fur-seals, or Eared seals. One of the best known of these animals is the northern Fur-seal, a specimen of which is exhibited in the collection. It is from this species that the valuable furs are obtained. It inhabits the North Pacific Ocean. About nine species, belonging to six genera, make up the family. They are distributed throughout the great seas of the north and south temperate zones, but do not, however, occur in the North Atlantic.

**20. Family ODOBÆNIDÆ. The WALRUSES.**

Species exhibited: Pacific Walrus, *Odobæenus obesus* (mounted skin).

The Walruses are the giants among the aquatic Carnivores. They are quite closely related to the sea-lions, but have no external ears, while the canine teeth are enormously developed, forming the "tusks." The Walruses are confined to the Arctic Seas. The specimen exhibited belongs to the species inhabiting the North Pacific Ocean. By some authorities it is considered identical with the Walrus of the Atlantic.

**21. Family PHOCIDÆ. The SEALS.**

Species exhibited: Harbor Seal, *Phoca vitulina* (mounted skeleton); Harp Seal, *Phoca grænlandica* (skeleton).

This is the sole remaining family of the Pinnipeds. The Seals can not turn their hind legs forward, and have no external ears; in which characters, as well as in many others, they differ decidedly from the sea-lions. None of the great seas are without representatives of this family, and one species lives in Lake Baikal. The best known species is the common Harbor Seal, *Phoca vitulina*, a specimen of which will be found in the collection. This species occurs everywhere in the North Atlantic and North Pacific oceans to the latitude of California and the Mediterranean. The curious Sea-elephants and the Bladder-nosed Seal, *Cystophora cristata*, belong to this family. Dr. Allen recognizes seventeen species of Seals.

**Order UNGULATA. The UNGULATES.**

We come now to a very different group of mammals, and one which includes the largest of the terrestrial species, such as the Elephants, Antelopes, Horses, and Deer. There is much diversity in form and structure among these animals, but with few exceptions they are all vegetable feeders, and have the toes furnished with broad blunt nails, or incased in hoofs.



**22. Family ELEPHANTIDÆ. The ELEPHANTS.**

Species exhibited: African Elephant, *Elephas africanus* (mounted skin).

We begin the consideration of these animals with the Elephants, which, it must be remarked, are regarded by some authorities as representatives of a distinct order, *Proboscidea*. There are two species of Elephants, one of which, *Elephas indicus*, inhabits southern Asia, while the second, *Elephas africanus*, is indigenous to Africa south of the Sahara Desert. A young individual of the latter species is exhibited. The Elephants possess characters which render them very distinct from the other Ungulates, and their structure is in many ways especially remarkable. They stand quite by themselves, both in point of size and peculiarity of organization. The Asiatic Elephant is domesticated.

**23. Family HYRACIDÆ. The CONIES.**

Species exhibited: Tree Coney, *Dendrohyrax arboreus* (mounted skin).

The Conies are quite as peculiar in their structure as the Elephants, and have given rise to much discussion among zoologists. They are related in some respects to the Rodents, and in others to the Elephants but the relationship is not a very close one. The Coney of Syria is several times mentioned in the Bible under the name of the "hider," a name doubtless applied to it on account of its timidity and cautious habits. This and other species of the genus live among the rocks, but there are several species belonging to another genus which make their nests in hollow trees. A specimen of one of these is exhibited. The Conies are indigenous to Africa and Syria. All the species are of small size.

**24. Family RHINOCEROTIDÆ. The RHINOCEROSSES.**

Species exhibited: Indian Rhinoceros, *Rhinoceros indicus* (mounted skin in a separate case).

We now reach a family of Ungulates which is more typical of the whole group than the families thus far considered. The five or six species of existing Rhinoceroses are the remnant of a large group of animals living in earlier ages. They belong to one of the two great divisions of the Ungulates, the *Perissodactyla*, or those with an odd number of toes. The Horses and Tapirs also belong to this sub-order. The Indian Rhinoceros, a specimen of which is exhibited, is perhaps the best known of the species, and is also the largest form. It inhabits the grass jungles of India. There is one African species, while the other forms are confined to southeastern Asia.

**25. Family TAPIRIDÆ. The TAPIRS.**

Species exhibited: Malayan Tapir, *Tapirus indicus* (mounted skin and skeleton).

The Tapirs differ from the Rhinoceroses in many important characters, especially in the form of the teeth. They are without nasal horns, and the nose is prolonged to form a short proboscis. There are several

species in Central and South America, and one in the Malay Peninsula and Islands. A skin of the last-named species is exhibited.

**26. Family EQUIDÆ. The HORSES.**

Species exhibited: Burchell's Zebra, *Equus burchelli* (mounted skin and skeleton).

We have in the common domestic horse a familiar representative of this family, which includes the Zebras, Wild Asses, and Horses. Burchell's Zebra, which is one of the handsomest species of the group, inhabits the plains of South Africa. All the Zebras are African animals, but Wild Asses have a more extensive range, reaching far up into central Asia.

**27. Family BOVIDÆ. The CATTLE.**

Species exhibited: Bison, *Bison americanus* (mounted head); Saiga Antelope, *Saiga tartarica* (mounted skin and skeleton); Ibex, *Capra ibex* (mounted skin).

With this family we reach the second division of the true Ungulates, the *Artiodactyla*, or those with an even number of toes.

The family *Bovidae* includes three very important species of domesticated mammals, the Sheep, Goat, and Cow. It comprises a great number of large and beautiful animals, many of which are well known. Here belong the Bison, Musk-ox, the great group of Antelopes (among which are the Rocky Mountain Goat, the Chamois, the Gnu, and the Gazelles), the Goats (including the Ibex), and the different species of Sheep.

Representatives of this family are found in every part of the globe, except South America, Australasia, and the islands of the Pacific. But in Africa are found by far the greater number of species. That continent is indeed the home *par excellence* of the great Ungulates. The domesticated species of cattle furnish man with his animal food, while the wild species are the natural prey of the carnivorous beasts.

**28. Family ANTILOCAPRIDÆ. The PRONG-HORNED ANTELOPES.**

Species exhibited: Prong-horned Antelope, *Antilocapra americana* (a group in a separate case).

This family includes only the Prong-horned Antelope of our western plains, a species which stands quite apart from those which we have just been considering. It presents, among many peculiarities, that of periodically shedding its horns like the deer.

**29. Family GIRAFFIDÆ. The GIRAFFES.**

Species exhibited: Giraffe, *Giraffa camelopardalis* (picture).

No specimen of this very singular beast was obtainable, but the appearance is familiar to every one. There is, perhaps, no more striking animal in existence than this. In many respects the Giraffe is closely allied to the deer, but it has only short, hairy-covered protuberances on the head, instead of well-developed antlers, and the feet are without lateral digits. The Giraffe is indigenous to Africa.



**30. Family CERVIDÆ. The DEERS.**

Species exhibited: Mule Deer, *Cariacus macrotis* (mounted skin); Red Deer, *Cervus elaphus* (mounted skin); Fallow Deer, *Dama vulgaris* (skeleton); Roe Deer, *Capreolus caprea* (skeleton).

About 63 species of Deers are known, six of which inhabit the United States. The largest species is the well-known Moose, and the smallest, perhaps, the little Chilian Deer, *Pudua humilis*. While the majority of species have well-developed antlers, two peculiar forms, *Hydropotes inermis* and the Musk Deer, *Moschus moschiferus*, are without these appendages, but possess instead very large canine teeth. In the Reindeers both sexes are provided with antlers, which is not the case in the remainder of the family. Australia is without representatives of this family, and only one species (believed to be identical with the Red Deer of Europe) is found in Africa, and this only north of Sahara; otherwise the Deers are well represented throughout the globe.

**31. Family CAMELIDÆ. The CAMELS.**

Species exhibited: The Llama, *Auchenia glama* (mounted skin and skeleton).

The Camels are represented in the Old World by the Dromedary, or one-humped Camel, and the Bactrian Camel, which has two humps. These two forms, however, are believed to be varieties of the same species. In South America the family is represented by the Llamas, of which there are two species, the Guanaco, from which the domestic Llama is thought to be descended, and the Vicugna, the domesticated form of which is known as the Alpaca. A young domesticated Llama is included in the collection.

**32. Family TRAGULIDÆ. The PYGMY DEERS OR CHEVROTAINS.**

Species exhibited: The Java Chevrotain, *Tragulus javanicus* (skeleton); Indian Chevrotain, *Memmina indica* (mounted skin).

These animals have often been confounded with certain of the true deers, from which they are quite distinct. They are small creatures, having much the habits of Pigs and some of the larger Rodents. In structure they appear to be intermediate between the Pigs and Deer. They are the smallest of existing Ungulates. There are at least six species, of which only one inhabits Africa, while the rest are found in southeastern Asia. Specimens of the Java and Indian species are exhibited.

**33. Family DICOTYLIDÆ. The PECCARIES.**

Species exhibited: Common Peccary, *Dicotyles tajacu* (mounted skin).

This family comprises only two species of pig-like mammals, which are natives of America. These are the common Peccary, which ranges from Arkansas to the Straits of Magellan, and the White-lipped Peccary, found only in South America.

A specimen of the common Peccary will be found in the collection.

**34. Family SUIDÆ. The HOGS.**

Species exhibited: African River Hog, *Potomochærus africanus* (picture).

The common Domestic Hog is a familiar representative of this group of mammals, which comprises a small number of singular, but not very

attractive animals. No species are indigenous to America, Australia, or the colder parts of Europe and Asia. All the Hogs are omnivorous.

**35. Family PHACOCHÆRIDÆ. The WART-HOGS.**

Species exhibited: Ethiopian Wart-hog, *Phacochoerus athiopicus* (picture).

This family comprises two species of African hogs, which differ from those of the preceding families in many essential characters. They possess large tusks, and have, besides, a peculiar wart-like protuberance under each eye. They feed upon roots.

**36. Family HIPPOPOTAMIDÆ. The HIPPOPOTAMUSES.**

Species exhibited: Common River Horse, *Hippopotamus amphibius* (picture).

Two species belong to this family; the great River Horse, *Hippopotamus amphibius*, whose range extends over nearly all of Africa, and *Hippopotamus liberiensis*, which is confined to Liberia. These animals have the teeth large and strangely specialized, while the toes are nearly all equal in size. In this latter character they differ much from the hogs. They are large, heavily-built animals, well adapted for a semi-aquatic life. The Liberian species has sometimes been regarded as belonging to a separate genus, *Chæropsis*.

**Order INSECTIVORA. The INSECTIVORES.**

We turn now to a new division, or order, of mammals, that of the Insectivores. The order is a large one and includes many very distinct forms. All the species are of small size.

**37. Family CHRYSOCHLORIDÆ. The GOLDEN MOLES.**

Species exhibited: Golden Mole, *Chrysochloris* sp. (mounted skin).

The Golden Moles are small mammals indigenous to South Africa. They resemble the common Moles in appearance, and like the latter construct subterranean burrows. In structure, however, they are more closely allied to the Tenrecs (family *Centetidae*). The Golden Moles take their name from the peculiar metallic lustre of their fur. Five species are known, limited in range to Africa south of the equator.

**38. Family CENTETIDÆ. The TENRECS.**

Species exhibited: Tenrec, *Centetes caudatus* (skeleton); *Ericulus setosus*, (mounted skin).

This family includes five species of insectivorous mammals, the largest of which is of about the size of a Squirrel. They inhabit Madagascar and the adjacent islands, and are nocturnal in their habits. A specimen of *Centetes caudatus*, the best known species, is exhibited, also one of *Ericulus setosus*, a smaller form belonging to another genus.

**39. Family SOLENODONTIDÆ. The ALMIQUIS.**

Species exhibited: Almiqui, *Solenodon cubanus* (mounted head and skeleton).

This family has been erected for the reception of two rather large Insectivores peculiar to the West Indies. They inhabit the remote mountainous districts, and specimens are but rarely obtained.



*Solenodon cubanus* inhabits Cuba, and the second species, *Solenodon paradoxus*, is indigenous to Hayti.

**40. Family POTAMOGALIDÆ.**

Species exhibited: West African River-shrew, *Potamogale velox* (picture).

This family includes but two species, one of which, the West African River-shrew, is perhaps the largest of the Insectivores, being about 2 feet in length. It inhabits the banks of streams in the equatorial region of western Africa. Its form is not unlike that of an Otter, while its compressed tail recalls that of the Muskrat. The species is rarely seen in collections.

The second species of the family belongs to a different genus, called *Geogale*. It is a small mouse-like animal, and is indigenous to Madagascar. Its anatomy and relationship are not well known.

**41. Family TALPIDÆ. The MOLES.**

Species exhibited: Common Mole, *Scalops aquaticus* (mounted skin and skeleton); Hairy-tailed Mole, *Scapanus americanus* (mounted skin); Star-nosed Mole, *Condylura cristata* (mounted skin).

The Moles are limited in their distribution to the temperate regions of North America, Europe, and Asia. The family includes twelve genera, comprising nineteen species. The majority are burrowers, but a few live a semi aquatic life. Perhaps the most singular species is our common Star-nosed Mole, *Condylura cristata*.

**42. Family SORICIDÆ. The SHREWS.**

Species exhibited: Hoy's Shrew, *Sorex hoyi* (skeleton); Short-tailed Shrew, *Blarina brevicauda* (mounted skin).

The Shrews are among the smallest of mammals. The family includes eight genera and a large number of species, but exactly how many is not known. The species exhibited in the collection are among the commonest North American forms. There are several amphibious species; and one, an inhabitant of Tibet, is thoroughly aquatic, having webbed-toes and curious adhesive cushions on the under surface of its feet, which enable it to hold on to smooth stones at the bottom of rushing torrents.

**43. Family ERINACEIDÆ. The HEDGEHOGS.**

Species exhibited: European Hedgehog, *Erinaceus europeus* (mounted skin); South African Hedgehog, *Erinaceus diadematus* (skeleton).

The Hedgehogs are confined to the Old World, but do not occur in Australia. Not all the species have spines like the common Hedgehog; in one of the two subdivisions of the family, the *Gymnurinae*, the species are rat-like in form. The family, according to Dr. Dobson, includes two genera and twenty-one species.

**44. Family MACROSCELIDÆ. The JUMPING SHREWS.**

Species exhibited: *Rhynchoryon cirnei* (mounted skin).

These animals are natives of Africa. The family includes about fourteen species, divided between two genera. The species belonging to the

genus *Microscelides* are not unlike the Kangaroo-rats (*Dipodomys*) of our western States in general appearance. A specimen of one of the species of a second genus, *Rhynchocyon cirnei*, is exhibited. It is a very rare animal.

**45. Family TUPAIIDÆ.** The BANGSRINGS.

Species exhibited: Tana, *Tupaia tana* (mounted skin).

These are the Squirrels among the Insectivores. They live in the forests of southeastern Asia, and feed upon insects and fruit. The family includes two genera and ten species. The Tana, of which a species is exhibited, is perhaps the best known species. It lives among the forests of Borneo and Sumatra.

**46. Family GALEOPITHECIDÆ.** The COLUGOS, OR FLYING LEMURS.

Species exhibited: Colugo, *Galeopithecus volans* (mounted skin).

These strange creatures, of which but two species are known, have been the source of much perplexity to zoologists. The early writers regarded them as Bats, while Linnæus, and some other authorities, placed them among the Lemurs. They are now, however, generally believed to be most closely allied to the family we have just considered. Like the Tana, they live among the trees, but are said to feed chiefly upon the leaves. They glide from tree to tree like the Flying-squirrels, by means of the parachute-like extension of the skin. They are natives of the Malay Peninsula and Islands.

Order CHIROPTERA. The BATS.

The Bats are well distinguished from all other orders of mammals by their power of flight. In structure they resemble the Insectivores. About four hundred species, belonging to six families, are known. On account of their strange physiognomy and nocturnal habits the Bats have given rise to many superstitions.

**47. Family PHYLLOSTOMIDÆ.** The LEAF-NOSED BATS.

Species exhibited: Common Artibeus, *Artibeus perspicillatus* (mounted skin).

The Leaf-nosed Bats, of which there are about sixty-three species, are natives of South America. The range of one species extends into California. The family includes the largest species, with the exception of the Fruit Bats, which, as will be seen presently, belong to quite a different division of the order. This is improperly called the Vampire (*Vampirus spectrum*), for it is quite innocent of the habit of sucking blood, which has frequently been attributed to it. The real Vampire is a small species, with very singular, chisel-like teeth: it belongs to another genus of this family, and is known as *Desmodus rufus*. There is also another small species known as *Diphylla ecaudata*, which has the same propensities as the true Vampire. The form exhibited, *Artibeus perspicillatus*, is one of the commonest species of the family.



**48. Family EMBALLONURIDÆ.** The THICK-LEGGED BATS.

Species exhibited: *Nyctinomus brasiliensis* (mounted skin).

The Bats belonging to this family are distributed generally throughout the tropical and subtropical regions of both hemispheres. But two species have been found within the United States; a specimen of one of these, *Nyctinomus brasiliensis*, is included in the collection. The members of this family are remarkable for the grotesqueness of their physiognomy. About sixty-three species are known.

**49. Family RHINOLOPHIDÆ.** The HORSESHOE BATS.

Species exhibited: Horseshoe Bat, *Rhinolophus hipposideros* (mounted skin).

These are small Bats, having peculiar horseshoe-like appendages on the nose. They are distributed throughout the temperate and tropical parts of the Old World. The European species, *Rhinolophus hipposideros* and *Rhinolophus ferrum-equinum*, are the best known species. There are in all five genera and fifty species.

**50. Family NYCTERIDÆ.** The LYRE BATS.

Species exhibited: *Megaderma gigas* (picture).

This is a small family of Bats comprising only two genera and eleven species. They are found in southeastern Asia and Africa.

**51. Family VESPERTILIONIDÆ.** The TYPICAL BATS.

Species exhibited: Silvery-haired Bat, *Vesperugo noctivagans* (mounted skin).

Representatives of this family are found in every quarter of the globe, and the range of two or three species extends beyond the Arctic Circle. The best-known Bats of North America and Europe belong to this family. The commonest species is the Serotine, *Vesperugo serotinus*, whose range extends throughout North America, Europe, Asia, and northern Africa. The group comprises sixteen genera and about one hundred and fifty species, or nearly one-half of all the species of the order.

**52. Family PTEROPODIDÆ.** The FRUIT-EATING BATS.

Species exhibited: Keraudren's Bat, *Pteropus keraudrenii* (mounted skin)  
*Pteropus* species (skeleton).

This family includes the largest and in some respects the most singular of the Bats. They are quite different in structure from the Bats of the preceding families and form a separate group in the order. The species all feed upon fruits, and for that reason cause much damage in the fruit gardens of the tropics of the Eastern hemisphere, where they occur. The largest species measure 5 feet across the outstretched wings. Some of the species congregate in great numbers. Tennent states that the Fruit Bat of Ceylon frequents the india-rubber trees of the botanic gardens near Kandy, "where they hang in such prodigious numbers that frequently the branches give away beneath their accumulated weight." Some species have the habit, unusual in this order, of flying in the day-time. The amount of fruit which these animals can devour is almost incredible.

## Order RODENTIA. The RODENTS.

The order Rodentia, or that of the gnawing mammals, is the largest of the class in point of numbers. Trouessart enumerates seven hundred and ninety-five species in his catalogue, not including the numerous fossil forms. As may be expected in so large a group, there is much diversity in form, size, and structure among the species of the order. Sixteen or seventeen families are usually recognized. We take up the consideration of these with the Hares and Pikas, which form a distinct division of the order, having, among other peculiarities, a double set of incisor teeth in the upper jaw. They are called for that reason the *Duplicidentata*, or double-toothed Rodents.

## 53. Family LEPORIDÆ. The HARES.

Species exhibited: Cotton-tail Hare, *Lepus sylvaticus* (mounted skin); Varying Hare, *Lepus americanus washingtoni* (mounted skin); Californian Jack-rabbit, *Lepus californicus* (mounted skin); Arctic Hare, *Lepus timidus* (skeleton); African Hare, *Lepus crassicaudatus* (skeleton).

The Hares or Rabbits are included in the single genus *Lepus*. There are about thirty species, of which eleven are indigenous to America. These animals are so well known that it is unnecessary to point out their peculiarities. Many species present the phenomenon, which is somewhat rare among mammals, of becoming white upon the approach of winter. The Rabbits are very prolific, and when their increase is unchecked they become a serious obstacle to agriculture, a condition of affairs well instanced in New Zealand at the present time.

## 54. Family LAGOMYIDÆ. The PIKAS.

Species exhibited: Little Chief Hare, *Lagomys princeps* (skin and skeleton).

There are about twelve species of these small rabbit-like animals, which occur in the Arctic and Temperate Regions of Asia. A single species is found in North America and goes commonly under the name of Little Chief Hare. They live in the mountains at high altitudes.

## 55. Family CAVIIDÆ. The CAVIES.

Species exhibited: Agouti, *Dasyprocta isthmica* (mounted skin); Patagonian Cavy, *Dolichotis patagonicus* (mounted skin).

With this family we reach the Rodents which are without a double set of incisor teeth, and form the sub-order *Simplicidentata*, or the single-toothed Rodents. A familiar species of this family is the domestic guinea-pig, whose name, as has been remarked, is a complete perversion of terms, since the animal is not a pig and does not come from Guinea. It is of South American origin. The Patagonian Cavy, of which a specimen is exhibited, is one of the largest species of the family. The forms called Agoutis and Pacas are commonly placed in a separate family, the *Dasyproctidæ*. They are natives of Central and South America. A specimen of one species, *Dasyprocta isthmica*, is exhibited. This family includes the largest existing Rodent, which is known as the Capy-



bara (*Hydrochaerus capybara*), full-grown individuals of which attain a length of over four feet, and are about twenty inches high at the shoulder. This animal is a native of South America, from Guiana to Rio de la Plata.

#### 56. Family DINOMYIDÆ.

Species exhibited: *Dinomys branickii* (picture).

This family is founded on a single specimen in the Zoological Museum of Berlin, obtained in Peru. It is said to possess characters which link it to several other families of Rodents.

#### 57. Family CHINCHILLIDÆ. The CHINCHILLAS.

Species exhibited: Chinchilla, *Chinchilla laniger* (mounted skin); Viscacha, *Lagostomus trichodactylus* (mounted skin); Cuvier's Chinchilla, *Lagidium cuvieri* (mounted skin).

The Chinchillas are rather large Rodents, with large hind legs, long, bushy tails, and soft fur. They are inhabitants of South America. The group takes its name from the true Chinchilla, *Chinchilla laniger*, the fur of which has been much prized. There are but three species, belonging to as many genera.

#### 58. Family HYSTRICIDÆ. The PORCUPINES.

Species exhibited: African Porcupine, *Hystrix cristata* (mounted skin); American Porcupine, *Erethizon dorsatus* (mounted skin); Java Porcupine, *Atherura javanica* (skeleton).

The Porcupines are remarkable for their spiny covering. All the species are quite large. There are in America three genera and in the Old World one. The species which has been longest known is the common Porcupine of southern Europe and northern Africa, a specimen of which will be found in the collection. Two forms are found within the United States.

#### 59. Family OCTODONTIDÆ. The OCTODONS.

Species exhibited: Coypu, *Myopotamus coypu* (mounted skin and skeleton); Degu, *Octodon cumingi* (mounted skin).

The Octodons are confined to South and Central America and Africa. The family is quite large, having about fifty species distributed among nineteen genera. The largest form, and one of the largest of all Rodents, is the Coypu, *Myopotamus coypu*, which looks like an immense Musk-rat with a Rat's tail. It is distributed over the greater part of South America. It lives in burrows near the water and feeds upon aquatic plants. In some of the genera the fur is mixed with stiff spines and the species are called Spiny-rats.

#### 60. Family DIPODIDÆ. The JUMPING MICE, or JERBOAS.

Species exhibited: American Jumping Mouse, *Zapus hudsonius* (mounted skin and skeleton); Cape Jumping Hare, *Pedetes caffer* (mounted skin).

The Jerboas are indigenous to North America, Asia, and Africa. They have greatly elongated hind legs, and possess extraordinary powers of leaping. The Jumping Hare of South Africa is said to clear 20

or 30 feet at a bound. A specimen of this species is exhibited. It is the largest form of the group. The only North American form is the little Jumping Mouse, whose range extends nearly over all North America. It is sometimes made the basis of a distinct family, *Zapodidae*. The Jerboas, which are somewhat larger animals, are characteristic of the great steppes of central Asia. Several species also occur in North Africa.

#### 61. Family GEOMYIDÆ. The GOPHERS.

Species exhibited: Pouched Gopher, *Geomys bursarius*, (mounted skin and skeleton); Pocket-rat, *Thomomys talpoides* (mounted skin); Kangaroo-rat, *Dipodomys phillipsii* (mounted skin and skeleton).

The Gophers are characteristic American animals. The best known forms are the common Pouched Gophers and the Pocket-rat, which occur throughout the Southern and Western portions of the United States, and are often a source of much annoyance to farmers. Specimens of both these animals are exhibited. The species of the genus *Dipodomys*, known as Pocket-mice or Kangaroo-rats, are capable of jumping like the common jumping-mouse, *Zapus hudsonius*. These animals, together with a number of smaller species belonging to two separate genera (*Perognathus* and *Cricetodipus*), are by many authorities placed in a separate family, *Sacomysidæ*.

#### 62. Family SPALACIDÆ. The MOLE RATS.

Species exhibited: Great Rodent Mole, *Bathyergus maritimus* (mounted skin).

Typical members of this family are small Asiatic and African animals which very much resemble the common mole in appearance. One species is perfectly blind, having the eye entirely covered by skin. Like the mole, also, they build extensive underground galleries. In a separate division of the family is included the large species exhibited, *Bathyergus maritimus*. It is a native of Cape Colony, and inhabits the sandy regions of the coast. It has a small eye and shrinks from the light, living like its allies, in great subterranean galleries. Like the other members of the group it feeds chiefly on roots. The family is a small one, comprising only about eighteen species, distributed among six genera.

#### 63. Family MURIDÆ. The RATS.

Species exhibited: Norway Rat, *Mus decumanus* (mounted skin and skeleton); American Field Mouse, *Hesperomys leucopus* (mounted skin); Bushy-tailed Wood Rat, *Neotoma cinerea* (mounted skin); American Meadow Mouse, *Arvicola riparius* (mounted skin); Prairie Meadow Mouse, *Arvicola austerus* (skeleton); White Lemming, *Cuniculus torquatus* (mounted skin); Harvest Mouse, *Ochetodon humilis* (mounted skin); Hamster, *Cricetus frumentarius*; *Cricetus phaus* (skeleton); Muskrat, *Fiber zibethicus* (mounted skin and skeleton); Australian Water-rat, *Hydromys chrysogaster* (mounted skin); *Ellobius talpinus* (mounted skin); *Brachytarsomys albicauda* (mounted skin).

This is a very large family of small mammals, comprising more than one-third of all the known Rodents. In North America alone there are



fully 35 species. To do justice to so large a group in this catalogue is obviously impossible. The bulk of the species, however, are typified by the common house rat, or Norway Rat, *Mus decumanus*, which has followed man into every part of the globe. In the same sub-family with it belong our common Field-mice, *Hesperomys leucopus*, and the species of Harvest-mice (genus *Ochetodon*). The common Hamster of Europe, and the large Water-rat of Australia belong to the same section of the group, but to different sub-families. All the species of this section have the molar teeth rooted. In the second section the molar teeth are without roots. Here we find the Meadow mice, or Voles (genus *Arvicola*), and the well known Musk-rat. Another sub-family of this section includes a number of mole-like rats, of which *Ellobius talpinus*, one of the species exhibited, is a representative.

#### 64. Family LOPHIOMYIDÆ.

Species exhibited: *Lophiomya imhausi* (picture).

This family is founded on a single species of peculiar appearance from northeastern Africa. It is very rare, and but few specimens have been obtained. It lives in trees.

#### 65. Family MYOXIDÆ. The DORMICE.

Species exhibited: South African Dormouse, *Graphurus capensis* (mounted skin); Garden Dormouse, *Eliomys nitela* (skeleton); Common Dormouse, *Myoxus glis* (mounted skin).

The Dormice are small forms having the appearance of Squirrels, but being rather more closely allied to the mice than to the former. The Common Dormice of Europe, *Myoxus glis* and *Myoxus avellanarius*, are the best known representatives of the group. A specimen of the former is included in the collection. The family is also represented in the collection by an African species, *Graphurus capensis*. The Dormice are limited to Europe, Asia, and Africa.

#### 66. Family CASTORIDÆ. The BEAVERS.

Species exhibited: Beaver, *Castor canadensis* (mounted skin).

The Beaver is an animal too well known to require description, and its habits have been repeatedly recorded. There are but two species in the family, one of which ranges over North America and the other over Europe and northern Asia. The Beaver furnishes one of the most valuable furs known to commerce, and for this reason has been nearly exterminated in many regions where it formerly abounded.

#### 67. Family HAPLODONTIDÆ. The SEWELLELS.

Species exhibited: Sewellel, *Haplodon rufus* (mounted skin and skeleton).

The Sewellels, or Mountain Beavers, are characteristic animals of North America. They are not unlike the Musk-rat in appearance, but have a very short tail. Two species only are known. They inhabit the west coast of North America.

**68. Family SCIURIDÆ. The SQUIRRELS.**

Species exhibited: *Pteromys cinereus*; *Pteromys nitidus*; Red Squirrel, *Sciurus hudsonius* (mounted skin and skeleton); Gray Squirrel, *Sciurus carolinensis* (mounted skin); Fox Squirrel, *Sciurus niger* (mounted skin); European Squirrel, *Sciurus vulgaris* (mounted skin); Californian Squirrel, *Sciurus fessor* (skeleton); Townsend's Chipmunk, *Tamias asiaticus townsendi* (skeleton); Eastern Chipmunk, *Tamias striatus* (mounted skin); Say's Chipmunk, *Tamias lateralis* (mounted skin); Californian Ground Squirrel, *Spermophilus grammurus beecheyi* (mounted skin and skeleton); Prairie Dog, *Cynomys columbianus* (mounted skin); Woodchuck, *Arctomys monax* (mounted skin).

The family of Squirrels includes some of the most graceful as well as the most familiar of mammals. There are five modifications of form in the group, which have received common names known to everyone. These are the Flying-Squirrels, which are common to both hemispheres; the true Squirrels, of which there are more than eighty species; the Chipmunks, which are mostly confined to North America; Prairie Dogs, characteristic of our Western plains; and Woodchucks, or Marmots, genus *Arctomys*. Representatives of this family are found in every part of the globe except the Australian region.

**69. Family ANOMALURIDÆ. The SCALE-TAILED SQUIRRELS.**

Species exhibited: *Anomalurus fulgens* (picture).

These animals are scarcely distinguishable at sight from the Flying-squirrels, which in form and habits they very closely resemble. They have, however, at the base of the tail a series of large scales which apparently assist them in climbing. The teeth and other parts of the skull also present characters which make it necessary to place these singular mammals in a separate family. There are about five species, which are natives of West Africa.

**Order CETACEA. THE WHALES.**

The Whales form a group so distinct from all others that there is little danger that the affinities of any of the species should not be at once recognized. They are entirely aquatic, never coming upon the land except through accident. Their surroundings have impressed upon them an external form which is more like that of the fishes than of the ordinary terrestrial mammals, and they are still often regarded by the uninitiated as being in reality fishes. In spite of the many strange modifications of their structure they are, however, true mammals.

**70. Family DELPHINIDÆ. The DOLPHINS or PORPOISES.**

Species exhibited: Common Dolphin, *Delphinus delphis* (cast); Bottle-nosed Dolphin, *Tursiops tursio* (cast); Harbor Porpoise, *Phocaena communis* (cast); Narwhal, *Monodon monoceros* (skeleton).

The family *Delphinidae* includes both the greatest number of species and some of the smallest forms of the order. The three species which are exhibited in the collection are the three best known species of the group. The Bottle-nosed Dolphin, or Porpoise, is found along our



entire Eastern sea coast, as well as in other regions of the Atlantic. The Common Dolphin, *Delphinus delphis*, is found in nearly all waters of the globe. The family includes about sixty species. In addition to the Porpoises, this family is usually made to cover the forms known as Blackfish, Grampuses, Killers, and the White Whale and Narwhal. The last is one of the most singular forms of the order, the male being furnished with a long straight horn, marked with spiral bands. The skeleton exhibited is that of an old male individual.

**71. Family PLATANISTIDÆ. RIVER DOLPHINS.**

Species exhibited: Susu, or Ganges Dolphin, *Platanista gangetica* (picture).

This family includes three very peculiar Dolphins, which frequent the mouths of rivers, or ascend far up to their sources. The species represented in the picture inhabits the great river systems of India, and notably the Ganges. The other two forms, each of which belongs to a separate genus, are South American. One of these, *Inia geoffroyensis*, lives in the Amazon River, and the other, known as the Pontoporia (*Pontoporia blainvillii*), has been found at the mouth of the Rio de la Plata. These three species have sometimes been made the basis of three distinct families.

**72. Family PHYSETERIDÆ. The SPERM WHALES.**

Species exhibited: Pygmy Sperm Whale (*Kogia breviceps*).

Every one must be familiar with some of the many pictures of the great Sperm Whale which gives the name to this family. This species is the largest of the Whales which have teeth. Its pursuit was once an industry of great magnitude and is still followed to a considerable extent. The Pygmy Sperm Whale, of which a specimen is exhibited, is quite closely allied to this huge animal and resembles it in many points of its structure, but never attains a very large size. Besides these species, the family includes a number of others, known as Ziphoid, or Bottle-nosed, Whales. They are quite large species, and never have more than four teeth, which, however, are sometimes of very peculiar shape. The smaller species of this family are not known to congregate in large "schools" or herds.

**73. Family BALÆNIDÆ. The WHALEBONE, or BALEEN WHALES.**

Species exhibited: Finback Whale, *Balænoptera musculus* (skeleton).

There are no larger animals in existence than the large Whalebone Whales, and it is doubtful whether any creatures belonging to previous geological ages exceeded them in size. The great Blue Whale (*Balænoptera sibbaldii*) attains the length of 80 feet. The species are divided by the whalers into Right Whales, Finback Whales, and Humpback Whales. The Right Whales belong to the genus *Balæna*, one of the species of which is the Greenland Whale, the oil and whalebone of which are still much sought for. The skeleton included in the collection represents one of the common species of Finback Whales. These take their name from the presence of a small fin on the back. This fin

is replaced in the Humpbacks by an irregular elevation of the skin. These animals also have very long pectoral fins, or "flippers." They form the genus *Megaptera*. The Gray Whale of the North Pacific belongs to a separate genus, called *Rachianectes*, and there is also in the South Seas a very small species, not more than 20 feet in length, which is made the basis of the genus *Neobalæna*.

### Order SIRENIA. The SEA-COWS.

The Sea-cows resemble the whales to a considerable extent in external appearance, but investigation has shown that they are widely different in structure.

They are far less fish-like, but thoroughly aquatic. Unlike the whales, they feed upon such vegetable matter as grows in the waters which they inhabit.

#### 74. Family HALICORIDÆ. The DUGONGS.

Species exhibited: Dugong *Halicore dugong* (picture).

The Dugongs are marine forms, feeding chiefly upon sea-weeds. They inhabit the Indian Ocean. Three species are usually recognized. The average length of these animals is about 8 feet.

#### 75. Family TRICHECHIDÆ. The MANATEES.

Species exhibited: American Manatee, *Trichechus manatus* (cast).

The Manatees resemble the Dugongs, but have broad, flat tails. They inhabit the rivers and estuaries of the Atlantic coast of tropical and subtropical America. But one species is a native of Africa. They ascend the large rivers almost to their sources, and feed upon the aquatic plants which grow near the shore. There are believed to be two distinct American species and one African species.

### Order EDENTATA. The EDENTATES.

The name Edentata, taken literally, can be applied only to animals without teeth, but it has come to be used in a broader sense for a group of mammals of low organization, some of which, but not all, are toothless. When teeth are present they are never firmly rooted to the jaw, as in the higher groups. The order includes the Sloths, Ant-eaters, Armadillos, Pangolins, and the Aard Varks.

#### 76. Family ORYCTEROPIDÆ. The AARD VARKS.

Species exhibited: Aard Vark, *Orycteropus capensis* (mounted skin and skeleton).

The skin and skeleton of the Aard Vark are included in the collection. This is a South African species, while a second species, or well-marked variety, is found in the northeastern part of Africa. These two animals are the sole representatives of the family. They live in burrows and feed chiefly on ants.

#### 77. Family MANIDÆ. The PANGOLINS.

Species exhibited: Pangolin, *Manis longicaudata* (mounted skin and skeleton).

These animals are covered with large scales, and look more like liz-



ards than mammals, but this is only a matter of external appearance. They are literally Edentata, being entirely without teeth. They are natives of southern Asia and Africa. Only one species is capable of climbing, the others living in burrows. They feed chiefly on ants.

**78. Family DASYPODIDÆ.** The ARMADILLOS.

Species exhibited: Giant Armadillo, *Priodon gigas* (mounted skin); Peba Armadillo, *Tatusia novemcincta* (mounted skin).

If the Pangolins have the appearance of lizards, the Armadillos might be mistaken for tortoises. Their solid, bony shell gives them a superficial appearance quite unlike that of any other mammals. The family is a moderately large one, and all the species are confined to South and Central America, except one, whose range extends into the United States. The largest form is the Giant Armadillo, *Priodon gigas*, a specimen of which is exhibited. When full grown it measures more than 3 feet from the tip of the nose to the root of the tail. It inhabits Guiana and Brazil. All the Armadillos feed chiefly on insects, but do not confine themselves exclusively to this food.

**79. Family MYRMECOPHAGIDÆ.** The ANT-EATERS.

Species exhibited: Great Ant-eater, *Myrmecophaga jubata* (mounted skin and skeleton).

This family includes the typical Ant-eaters, which are all inhabitants of South and Central America. Though their form is peculiar, they resemble the other mammals more closely in external appearance than do the forms we have just considered. Like the Pangolins, they are without teeth, and have very long, almost thread-like tongues. Their food, as might be supposed from this condition of the mouth, consists almost exclusively of insects. There are but three species, belonging to as many genera, the largest being the Great Ant-eater, or Ant-bear, a specimen of which is exhibited. The head and body of an adult of this species measure four feet in length. The Little Ant-eater, *Cycloturus didactylus*, the smallest species of the group, is scarcely larger than a rat. Unlike the Ant-bear, it lives among the trees.

**80. Family BRADYPODIDÆ.** The SLOTHS.

Species exhibited: Hoffman's Sloth, *Cholopus hoffmani*.

These strange creatures seem never to have slept enough, and nothing can arouse them from their drowsiness. During the day they hang motionless from the limbs of trees, and even at night, when they move about, do so in the most listless manner. "All the movements of the animals are slow," says Mr. Duncan. "It moves its claws slowly; in eating, it chews slowly; it climbs slowly." The Sloths are usually distributed among three genera. They are confined to the forest regions of South and Central America and feed upon young leaves and buds.

## Order MARSUPIALIA. THE MARSUPIALS.

We now reach a group of mammals which differs essentially from all those which we have been examining. The young of the Marsupials

are born in a very imperfect state, and are carried by the mother in a pouch or "marsupium" for a long time. In this respect, and in many other characters connected with it, the Marsupials are clearly distinct from the higher or "placental" mammals. The forms of the latter are, however, reproduced to a large extent, and there are rat-like, squirrel-like, and dog-like species, some of which might easily be mistaken for members of the higher division of the class. The geographical distribution of the Marsupials is scarcely less remarkable than their structure. They are confined exclusively to the Australian region, with the exception of one family, the Opossums, which are found in America.

### 81. Family PHASCOLOMYIDÆ. The WOMBATS.

Species exhibited: Wombat, *Phascolomys wombat* (mounted skin and skeleton).

The Marsupials are divided among six families, which we will now take up in order.

The Wombats are not unlike young bears, but their teeth betray their gnawing propensities. They feed upon roots and other vegetables and live in burrows. Three species are known, all very similar in appearance and size. They inhabit southeastern Australia and Tasmania.

### 82. Family PHALANGISTIDÆ. The PHALANGERS.

Species exhibited: Australian "Opossum," *Phalangista vulpina* (mounted skin and skeleton).

This family includes the species which Australians call "Opossums," the curious Koala, or "Bear," and a little mouse-like, honey-eating animal known to zoologists as *Tarsipes*. The Koala, *Phascolarctos cinereus*, is the largest form, and somewhat resembles a small bear. Its color is grey. It feeds upon the buds of the Eucalyptus tree. The Phalangers vary much in form; some are like Flying-squirrels and others like our Opossum, but have hairy tails. The species exhibited is one of the best-known forms. It is found throughout Australia.

### 83. Family MACROPODIDÆ. The KANGAROOS.

Species exhibited: Red Kangaroo, *Macropus rufus* (mounted skin); Rock Kangaroo, *Petrogale lateralis* (skeleton).

The large Kangaroos look not unlike gigantic jumping-mice. Their huge hind legs and long tails give them an appearance not found among other large mammals, and hence they are not easily to be mistaken for members of other groups.

Not all the species, however, are of great size. While the large forms are taller than a Man, the smallest are scarcely bigger than Rabbits. The Kangaroos inhabit Australia, Tasmania, and New Guinea.

In the great forests of the latter island are found the Tree-kangaroos (genus *Dendrolagus*), which live among the trees and feed upon their leaves. In this they differ from the ordinary Kangaroos, which live on the ground and feed upon roots and grasses.

More than 40 species are known, distributed among 7 or 8 genera. The Red Kangaroo, *Macropus rufus*, of which a specimen is exhibited, is one of the largest species of the group.



**84. Family PERAMELIDÆ. The BANDICOOTS.**

Species exhibited: Rabbit-eared Perameles, *Perameles lagotis* (mounted skin and skeleton).

The Bandicoots are a small group, and none of the species are larger in size than a rabbit. The species exhibited, *Perameles lagotis*, is called by the Australians "Native Rabbit." The Bandicoots do not confine themselves exclusively to vegetable matter, like the kangaroos, but feed largely upon insects.

The species which gives the family its name is *Perameles gunnii*, a native of Australia. Two genera are generally recognized, but the number of species is not exactly known. The Bandicoots are natives of Australia, Tasmania, New Zealand, and several of the smaller adjacent islands.

**85. Family DASYURIDÆ. The DASYURES.**

Species exhibited: Spotted Dasyure, *Dasyurus maculatus* (mounted skin and skeleton).

This is a large group of flesh-eating Marsupials, the members of which vary much in size and structure. They take the place in Australasia, says Professor Flower, of the wolves, cats, weasels, and civets of other parts of the world. Their hind legs are not elongated as in the kangaroos, and the toes are pretty equally developed. Their teeth are well adapted to their carnivorous habits. One of the largest of these animals is the *Thylacinus*, which resembles a wolf very closely, but has black stripes across its back. One of the more typical Dasyures, *Dasyurus maculatus*, is exhibited. It looks not unlike a small, spotted cat with a long tail. Another genus, *Phascogale*, embraces a large number of small rat-like forms, some of which are scarcely distinguishable at sight from the true rats. In a separate division, or subfamily, of this group is placed the *Myrmecobius*, or Pouched Ant-eater, an animal of about the size of a squirrel and of a chestnut color, with broad cross-bands of white. It has a very long tongue, and, as the name implies, feeds upon ants. The Dasyures inhabit Tasmania, Australia, southern New Guinea, and some of the adjacent islands.

**86. Family DIDELPHIDÆ. The OPOSSUMS.**

Species exhibited: Opossum, *Didelphys virginianus* (mounted skin); Water Opossum, *Chironectes variegatus* (mounted skin).

The Opossums are the only Marsupials found outside of Australasia. They are confined exclusively to America. Our common opossum is typical of the group, and is one of the largest species. The smallest species are not so large as a house-rat. There is little diversity in the general appearance of these animals. They feed chiefly upon insects and such other animal matter as they can obtain. All the species except one are included in the genus *Didelphys*. The exceptional form is the variegated Water opossum, or Yapock, a specimen of which is exhibited. This is an aquatic species, with webbed feet. It feeds chiefly on fish.

## Order MONOTREMATA. The MONOTREMES.

We come now to the lowest of the beasts, the Primary beasts, or *Prototheria*, as they are sometimes called. Above them, as we have seen, are the Marsupials, which are called also the *Metatheria*, or the beasts of middle rank; and at the top of the series stand the *Eutheria*, or perfected beasts. The primitiveness of the Primary beasts shows itself in nearly every part of their structure. In many respects they show close relationship to the Birds and Reptiles. The most striking evidence of their relation to these classes of animals is perhaps to be found in the fact that they lay eggs, from which mammalian "chicks" are in due time hatched out. The group probably had many representatives in former ages, but only about five species now exist.

**87. Family ECHIDNIDÆ.** The ECHIDNAS, OR SPINY ANT-EATERS.

Species exhibited: *Echidna hystrix* (mounted skin); *Acanthoglossus brijni* (skeleton).

The family *Echidnidæ* includes all the species of Monotremes except one. They all have the appearance of Hedgehogs, but have long snouts and very long tongues, and feed upon ants, like the true Ant-eaters of South America. A stuffed specimen of the best-known species, *Echidna hystrix* or *aculeata*, is exhibited, and a skeleton of the rare, long-beaked *Acanthoglossus brijni*. The Echidnas live in Australia, Tasmania, and New Guinea.

**88. Family ORNITHORHYNCHIDIDÆ.** The DUCK-BILLS, OR PLATYPUSES.

Species exhibited: Duck-bill, *Ornithorhynchus anatinus* (mounted skin).

This family includes only the strange Duck-bill, or Platypus, of Australia and Tasmania, a creature with a head like a Duck's and a body like an Otter's. It is an amphibious beast, living in burrows on the banks of rivers, and swimming and diving with great facility. It feeds upon aquatic insects, worms, and mussels. But one species is known.





